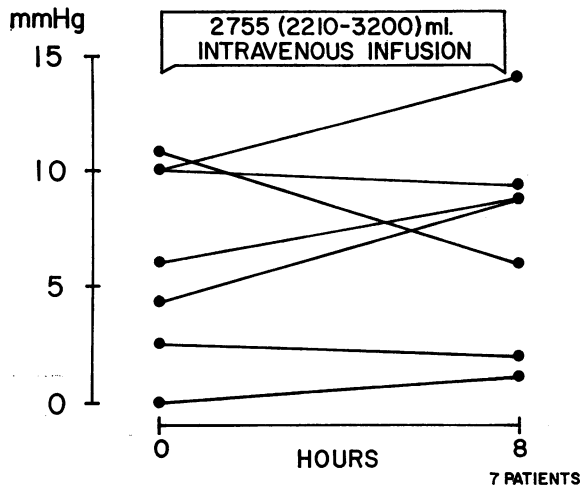


Chart 6.—Changes of central venous pressure after infusion of 2,210 to 3,200 ml of fluid over an eight-hour period in seven patients with circulatory shock.

ciency were successfully treated with fluids in large amounts, averaging 2,700 ml in an eight-hour period without other therapy. Their response to this treatment was a consistent increase in mean blood pressure (72 to 82 mm of mercury), cardiac index (2.6 to 2.9 L/min/M$^2$) and plasma volume (54 to 64 ml per kilogram of body weight). Changes in venous pressure are shown in Chart 6. The inconsistency in effects on central venous pressure emphasizes that venous pressure is not a measure of intravascular volume. However, it is a reliable indicator of the capacity of the heart to accept additional fluid. We recommend that this technique be routinely used for guiding fluid repletion in patients with clinical shock.

## Cerebral Blood Flow in Hemorrhagic Shock

LOUIS L. SMITH, M.D.*

Hemorrhage summons compensatory mechanisms that assure maintenance of blood flow to vital organs, and especially to the brain. The effect of graded hemorrhage on total cerebral blood flow was investigated. In an experiment with dogs, the blood volume was measured and then the animals were bled at intervals of six hours. Eight per cent of the initial blood volume was removed each time. The blood flow through the carotid and vertebral arteries was measured by an electromagnetic flowmeter and related to arterial and central venous pressures, cardiac output and femoral arterial flow as observed before and during hemorrhagic shock. Twenty dogs were studied. In dogs, approximately 70 per cent of total cerebral flow is supplied by vertebral arteries. Vertebral blood flow was maintained at a significantly higher level than femoral blood flow. The larger the hemorrhage, the greater the disparity between vertebral and femoral arterial flow values.

Cerebral blood flow is selectively maintained at the expense of nonvital circulation to muscle and skin. Greater attention should be paid to cerebral function than to blood pressure per se, since the blood pressure is a poor index of cerebral blood flow during hemorrhagic shock.

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## Newer Methods for Measuring Peripheral Flow in Man

CHESTER HYMAN, PH.D.*

Because shock, or peripheral vascular collapse, is probably associated with a prolonged inadequacy of peripheral blood flow, it follows that a survey of the perfusion of each of the body tissues during shock would provide important data. Sur-

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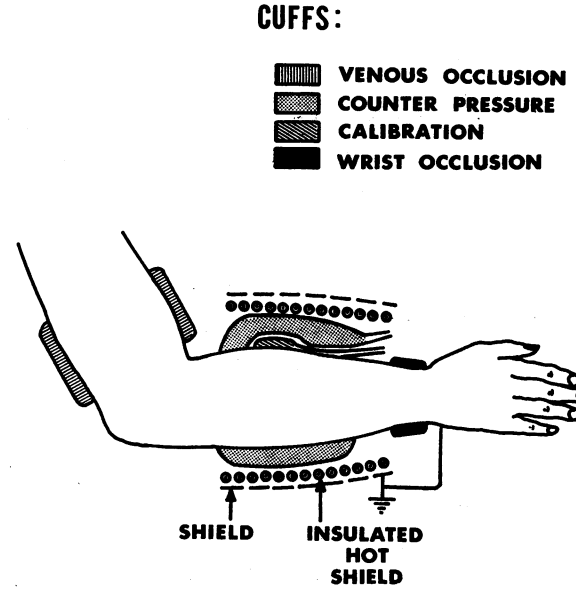


Figure 1.—Use of apparatus for electrocapacitance plethysmography.